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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,602	08/27/2003	Karl Schrodinger	M&N-IT-557	5514

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LERNER GREENBERG STEMER LLP
P O BOX 2480
HOLLYWOOD, FL 33022-2480

EXAMINER

GARCIA, LUIS

ART UNIT	PAPER NUMBER
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2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/649,602		SCHRODINGER, KARL	
	Examiner		Art Unit	
	Luis F. Garcia		2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-18 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 19-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 14-26 are pending instant application.

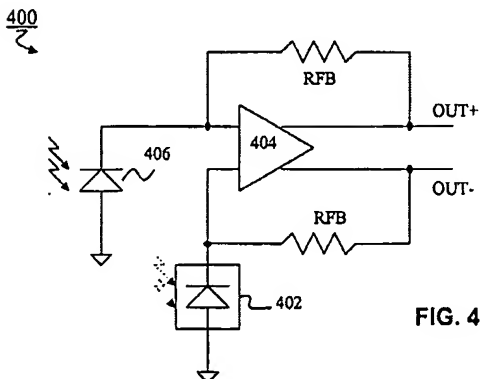
Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 14, 16, 22 and 24 are rejected** under 35 U.S.C. 102(e) as being anticipated by Hoang et al (US 2002/0191263) hereinafter referred to as Hoang.



Regarding claim 14, Hoang discloses an optical receiver circuit (FIG. 4), comprising:

a differential amplifier including a first input and a second input (FIG. 4 (404-TIA)) and ¶0012,0020 in which the TIA (differential amplifier) includes two differential inputs);

an optical reception device connected to said first input of said differential amplifier, said optical reception device having an electrical behavior in an illumination-free case (**FIG. 4 (406-photodiode)** in which the photodiode is connected to the first input of the differential amplifier and has an electrical behavior in an illumination free case, e.g. the photodiode has an “ambient” current output in an illumination free case-¶0020,0023); and

an electrical element for simulating the electrical behavior of said optical reception device in the illumination-free case, said electrical element connected to said second input of said differential amplifier (**FIG. 4 (402-dark photodiode)** in which the dark photodiode is connected to the second input of the differential amplifier and simulates the electrical behavior of photodiode-406 in an illumination free case, e.g. both photodiodes have the same performance and physical characteristics such as the same “ambient” current in an illumination free case).

Regarding claim 16, Hoang discloses the optical receiver circuit according to claim 14 as applied above.

Hoang further discloses wherein: said electrical element is formed by a darkened, further reception device (**FIG. 4 (402-dark photodiode)** in which the dark photodiode (electrical element) is formed by a darkened reception device, e.g. photo is covered with an opaque material such as metal or paint-¶0021).

Regarding claim 22, Hoang discloses the optical receiver circuit according to claim 14 as applied above.

Hoang further discloses wherein: said optical reception device and said electrical element are connected to a common supply voltage (**FIG. 5 (Vdd) in which both photodiodes (optical reception device and the electrical element) are connected to a common supply voltage (e.g Vdd).**

Regarding claim 24, Hoang discloses the optical receiver circuit according to claim 14 as applied above.

Hoang further discloses wherein: said optical reception device is a photodiode; and said electrical element is a photodiode (**FIG. 4 (402-dark photodiode, 406-photodiode) in which the optical reception device and the electrical element are photodiodes).**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claim 17 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Hoang in view of Yano et al (IEEE September 1990), Yano et al hereinafter referred to as Yano.

Regarding claim 17, Hoang discloses the optical receiver circuit according to claim 16 as applied above.

Hoang does not expressly disclose wherein: said optical reception device and said further reception device are monolithically integrated on a chip. However, it is

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notoriously well known in the art to monolithically integrate an optical receiver on a chip. As evidence of this well known concept, prior art reference Yano is provided. Yano discloses wherein: said optical reception device and said further reception device are monolithically integrated on a chip (I. Introduction and II. Growth and Fabrication in which a receiver is monolithically intergraded on a chip). Thereby, allowing for a more compact design and implementation.

4. **Claims 15 and 18 rejected** under 35 U.S.C. 103(a) as being unpatentable over Hoang in view of Hachiuma (US 5,111,156).

Regarding claim 18, Hoang discloses the optical receiver circuit according to claim 14 as applied above.

Hoang does not expressly disclose further comprising: a first preamplifier connecting said optical reception device to said differential amplifier; and a second preamplifier connecting said electrical element to said differential amplifier, said first preamplifier and said second preamplifier being identical. However, pre-amplifying the signals received from the photodiodes with separate preamplifiers is well known in the art and considered obvious in view of Hoang, e.g. to boost the received power in order to allow for proper processing of the signal. As evidence of this well known concept, prior art reference Hachiuma is provided. Hachiuma discloses connecting an amplifier/preamplifier to the output of a photodiode (FIG. 6 and col3 ln48-68 in which the photodiode current is amplified). Furthermore, having the first preamplifier be identical to the second preamplifier is obvious as a matter of design choice. The motivation being that this allows for easier circuit implementation and allows for both PD signals to be

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amplified with similar amplifier characteristics; thereby, leading to better noise cancellation by the differential amplifier/TIA. Therefore, having both preamplifiers be identical is considered obvious in view of Hoang.

Regarding claim 15, rejected as stated in claim 18 rejection.

5. **Claims 23 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Hoang in view of Maxim (Spec Sheet, January 2002).

Regarding claim 23, Hoang discloses the optical receiver circuit according to claim 14 as applied above.

Hoang does not expressly disclose in which it is well known in the art to have a power supply filter (e.g. low-pass filter connect to the common power supply) in order to reduce noise and parasitic effects in the power supply, e.g. provides a "clean" power supply. As evidence of this well known concept, prior art reference Maxim is provided. Maxim discloses a power supply filter in order to reduce noise and parasitic effects in the power supply (pg1 Typical Application circuit in which the power supply is filtered to remove noise).

6. **Claim 25 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Hoang in view of Fujimura et al (US 6,034,424), Fujimura et al hereinafter referred to as Fujimura.

Regarding claims 25, Hoang discloses the receiver circuit according to claim 14 as applied above.

Hoang does not expressly disclose comprising: a package for packaging said differential amplifier, said optical reception device, and said electrical element, said

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package being selected from the group consisting of a TO-46 package, a TSSOP package, and a VQFN20 package. However, it is well known in the art to package the photodiode(s) with respective circuitry. Thereby, allowing for a smaller circuit footprint. Furthermore, claimed packages are well known and standardized packages in which their implementation is consider obvious. As evidence of these well known concepts, prior art reference Fujimura is provided. Fujimura disclose a package for packaging a photodiode and circuitry (FIGs. 1a,b and col1 ln20-42) in which the package of a TO-46 package.

7. **Claim 26 is rejected** under 35 U.S.C. 103(a) as being obvious over Hoang in view of Fujimura in further view of Ewen et al (US 6,862,322), Ewen et al hereinafter referred to as Ewen.

Regarding claim 26, Hoang in view of Fujimura disclose the receiver circuit according to claim 25 as applied above.

Hoang in view of Fujimura does not expressly disclose an integrated control circuit having a control terminal, said package having a terminal pin forming said control terminal.

Ewen teaches an integrated control circuit having a control terminal (**FIGs. 2B,4B in which the receiver circuit has control circuitry with a control terminal**), said package having a terminal pin forming said control terminal (**col3 ln4-9 in which packaging with a control terminal inherently includes a terminal pin for adjusting control circuitry**).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Hoang in view of Fujimura and incorporate Ewen's teaching of a package with control pins. The motivation being that this allows the optical receiver to be easily controlled via a pin from the TO-46 package. Thereby, allowing for easier and faster implementation/control of an optical receiver in an optical system.

Allowable Subject Matter

8. Claims 19-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luis F. Garcia whose telephone number is (571)272-7975. The examiner can normally be reached on 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken N. Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LG


KENNETH VANDERPUYE
SUPERVISOR, PATENT EXAMINER